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Four Commercial Terraces

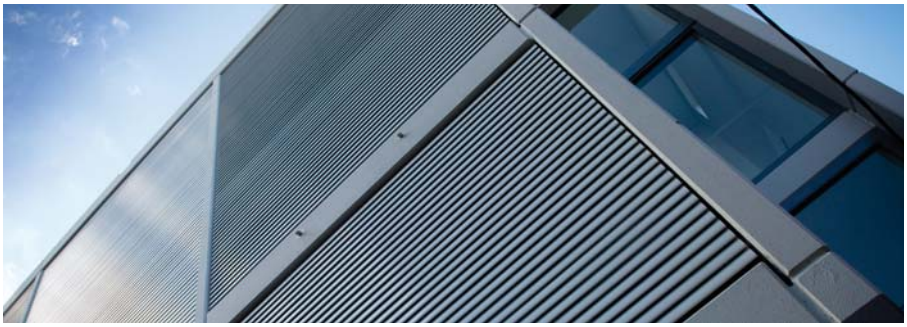
A Completely Precast Solution

Baseline Constructions Pty Ltd has developed a fine reputation in Sydney over more than a decade for providing a complete precast solution for a range of projects. In many ways they have pioneered the growing change to precast for projects in Sydney that a few years ago would have been considered in masonry.

Hokin Design Group and Baseline Constructions developed a relationship early in 2000 when Baseline was in the process of developing the design of a project in Alexandria using precast panel systems. A substantial project for 180 apartments in 2002 in Sydney's western suburbs at Homebush followed.

When, in 2004, Baseline engaged HDG to provide the architectural services for four, four storey commercial terraces in Blackfriar's Street, in the inner Sydney suburb of Chippendale, the previous experience ensured that the design process was well understood and the solutions were tailored to efficient use of precast. Baseline had completed residential and commercial buildings for the client previously, but these buildings had been constructed of brick and Baseline was now committed to the use of precast concrete wall and floor panel systems.

Their experience with both methods convinced them that precast was the most effective and cost efficient method of building quickly and economically.



The configuration of the site, which is approximately 20 metres wide by 24 metres with four approximately equal width terrace lots, lent itself to a simple precast concrete vertical structure on boundary and party walls, large open balconies on the front towards the street, and precast hollow core floor planks spanning the terraces and for the roof. With the approved height restriction the relative minimum thickness of the precast hollow core floor and roof planks allowed four levels to be squeezed in within the height, a solution that could not have been obtained with flooring systems that require beams.

The resultant architectural expression met the requirement for a design of very simple appearance with only the thickness of the floors and walls showing on the façade. While the general appearance was simple, there was a layering of interesting detail created by grooves in the panels that provided an effective human streetscape scale. The large balcony openings facing north towards the street were screened

with large blade adjustable louvres for privacy, solar and weather protection, as well as providing a fine textural contrast.

The design lent itself to a very fast construction sequence where the structure could be erected quickly allowing finishing trades and services access to the building to work under cover and unhindered by form work and back propping.

The external end walls were 175mm thick ship-lapped painted precast panels, with the dividing internal walls between the terraces being a space-saving 150mm thick, while achieving fire and acoustic separation. These panels were typically 9.5 metres long by 3 metres high, weighing 11.5 tonnes. A total of 210 hollow core floor panels, generally 9.5 metres long comprised the floors and roof slabs. The 150mm deep hollow core was given an in-situ concrete topping reinforced to internal areas and to external areas.

Jeff Hokin of Hokin Design Group said: "In summary, from an architectural perspective, the use of precast in building design should be used as a core part of the building's architectural expression and create a strong discipline for the structural layout. It works best where there is relevance for repetitive and regular layouts, and this should be clearly expressed through the design outcome."

"The major challenge is to ensure that there is a good balance between solid and void, with as many large openings as possible, otherwise a precast concrete building can appear too heavy and "blocky," he said.

This design approach achieved a very buildable and attractive result at Blackfriar's Street. Baseline's many interesting precast concrete projects can be seen at: www.baselineconstructions.com.au